FIG. 1

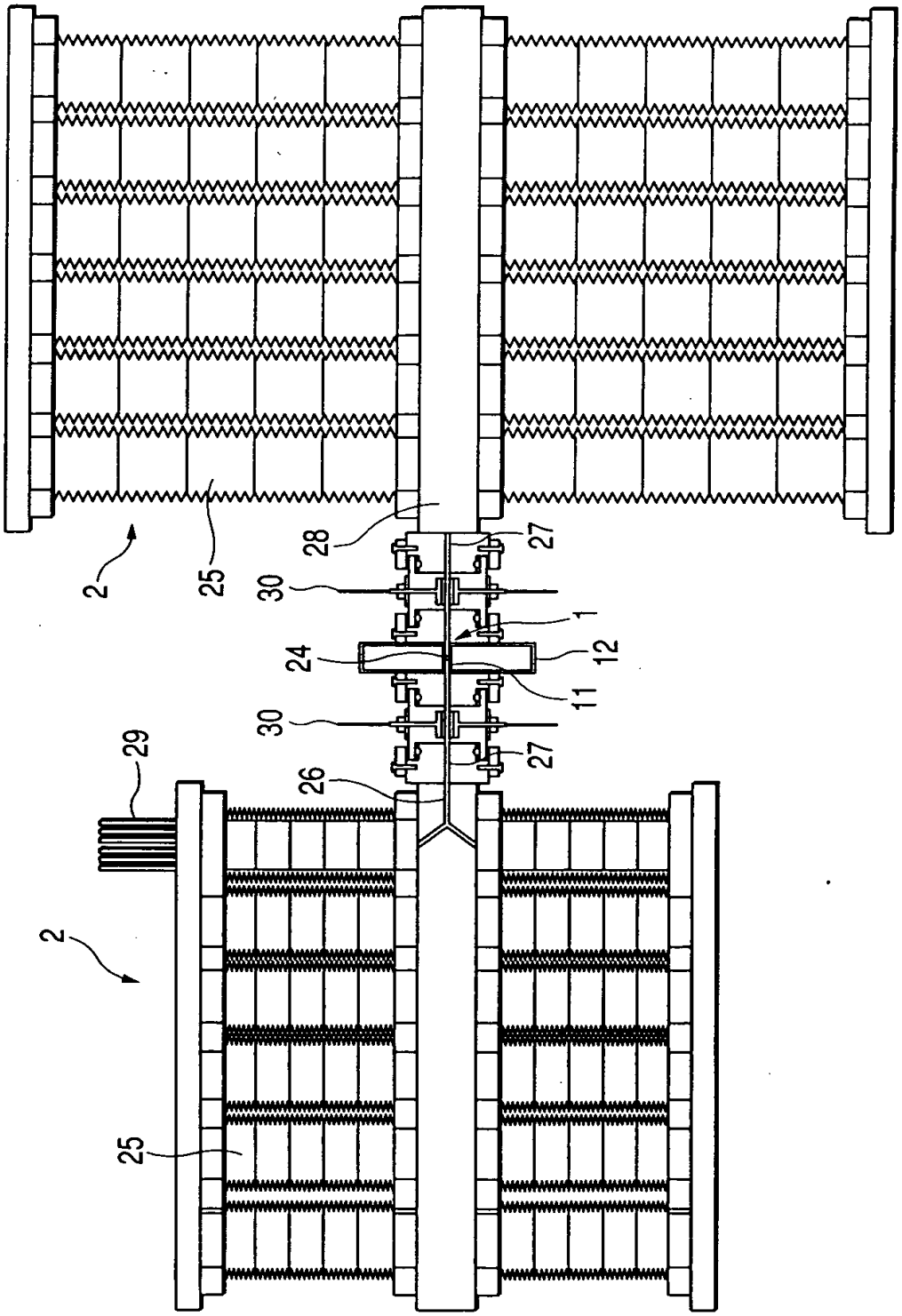


FIG. 2A

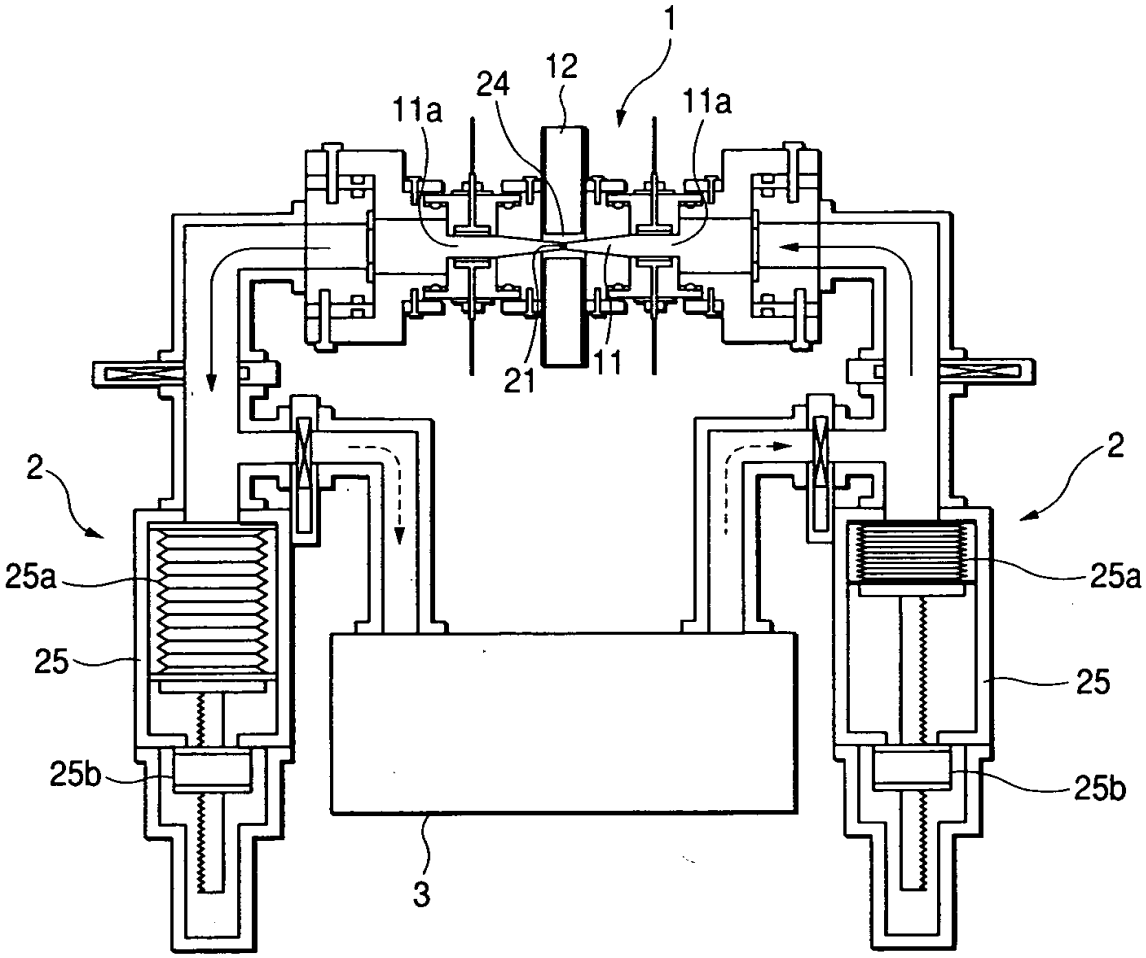


FIG. 2B

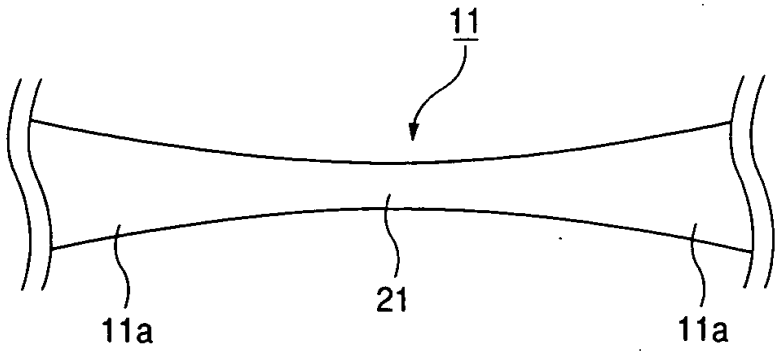


FIG. 3

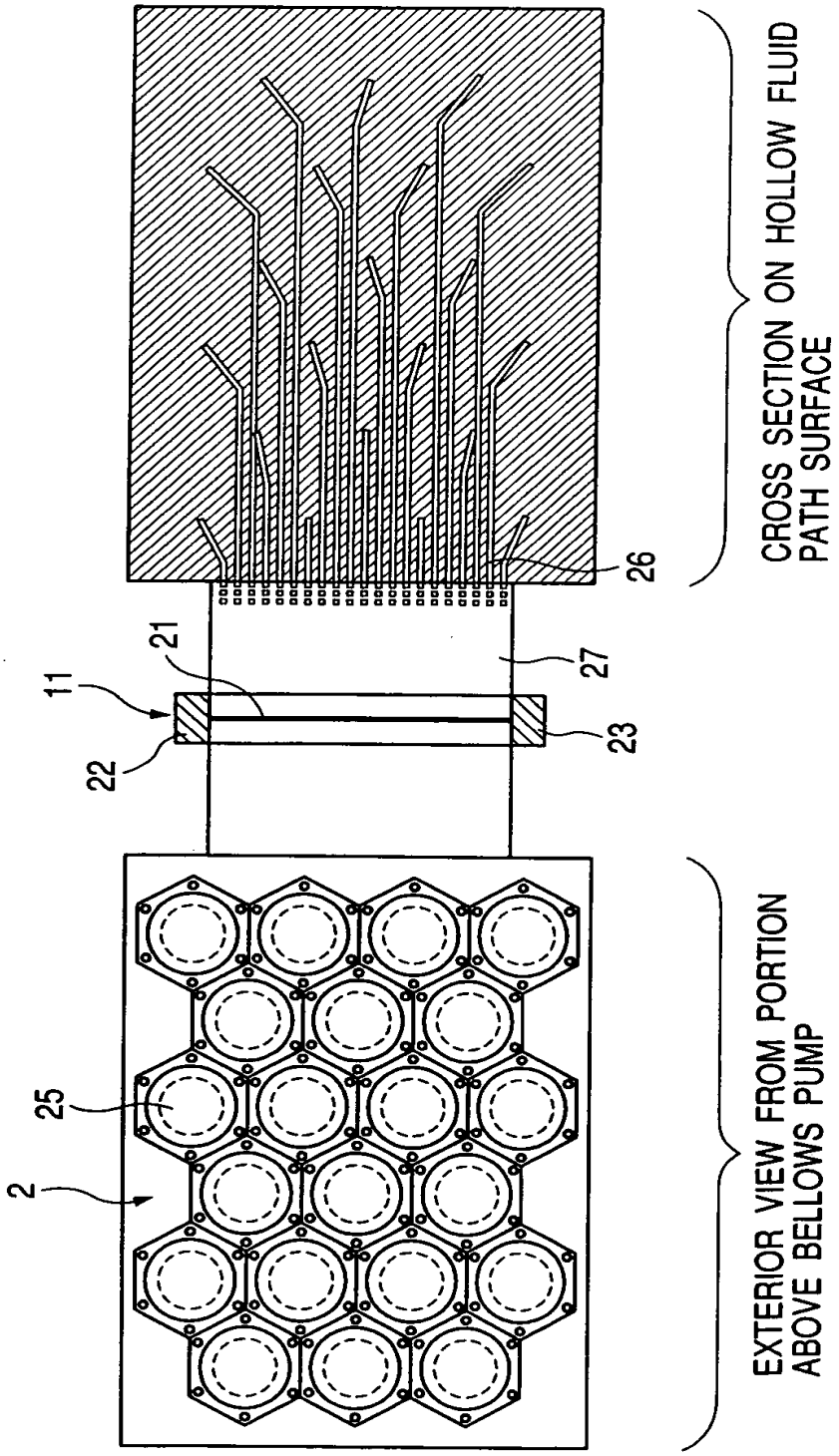


FIG. 4

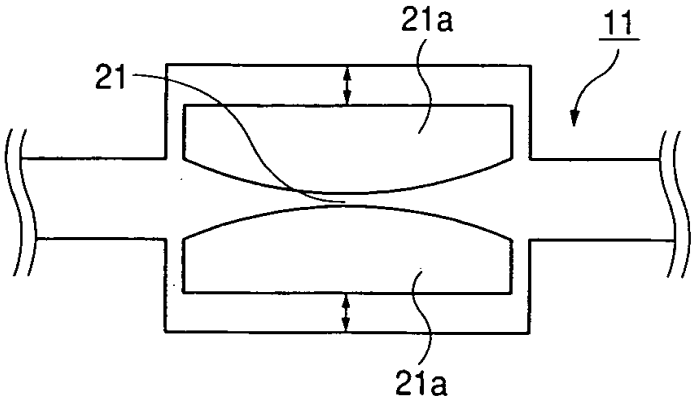

21a
11
21
21a

FIG. 5

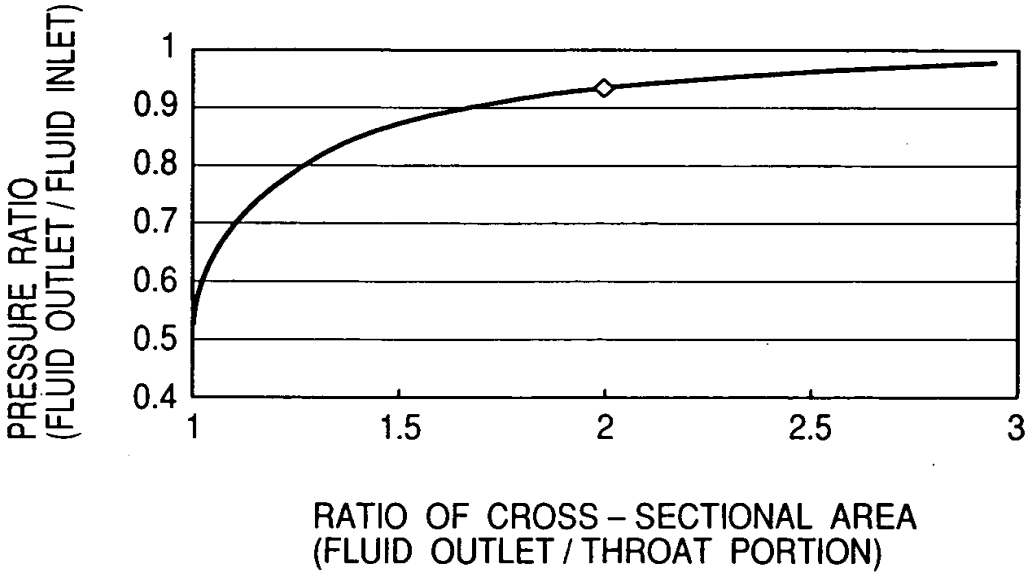

PRESSURE RATIO
(FLUID OUTLET / FLUID INLET)
1
0.9
0.8
0.7
0.6
0.5
0.4
1
1.5
2
2.5
3
RATIO OF CROSS - SECTIONAL AREA
(FLUID OUTLET / THROAT PORTION)

FIG. 6

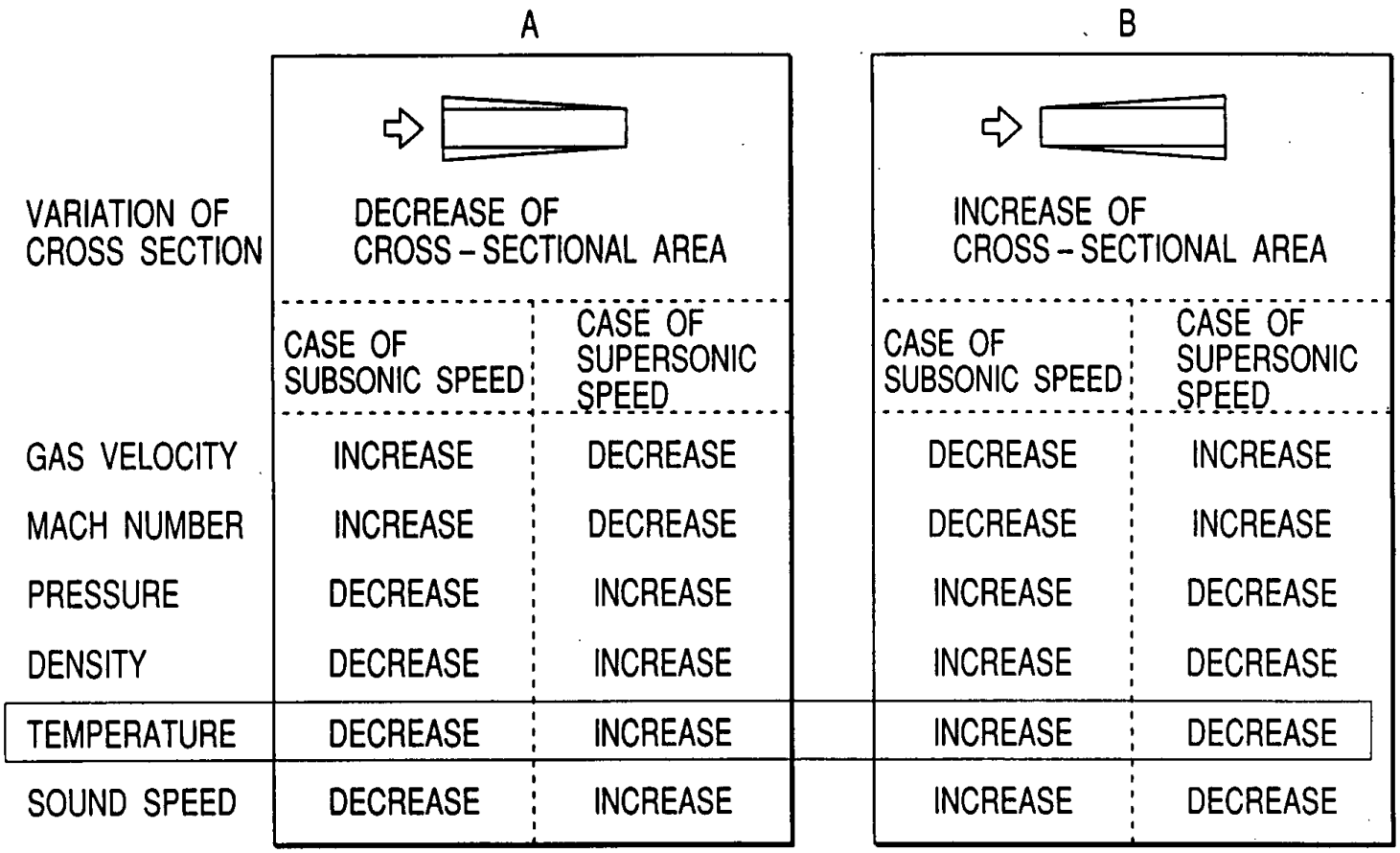

A
B
VARIATION OF CROSS SECTION
DECREASE OF CROSS-SECTIONAL AREA
INCREASE OF CROSS-SECTIONAL AREA
CASE OF SUBSONIC SPEED
CASE OF SUPERSONIC SPEED
CASE OF SUBSONIC SPEED
CASE OF SUPERSONIC SPEED
GAS VELOCITY
INCREASE
DECREASE
DECREASE
INCREASE
MACH NUMBER
INCREASE
DECREASE
DECREASE
INCREASE
PRESSURE
DECREASE
INCREASE
INCREASE
DECREASE
DENSITY
DECREASE
INCREASE
INCREASE
DECREASE
TEMPERATURE
DECREASE
INCREASE
INCREASE
DECREASE
SOUND SPEED
DECREASE
INCREASE
INCREASE
DECREASE

FIG. 7

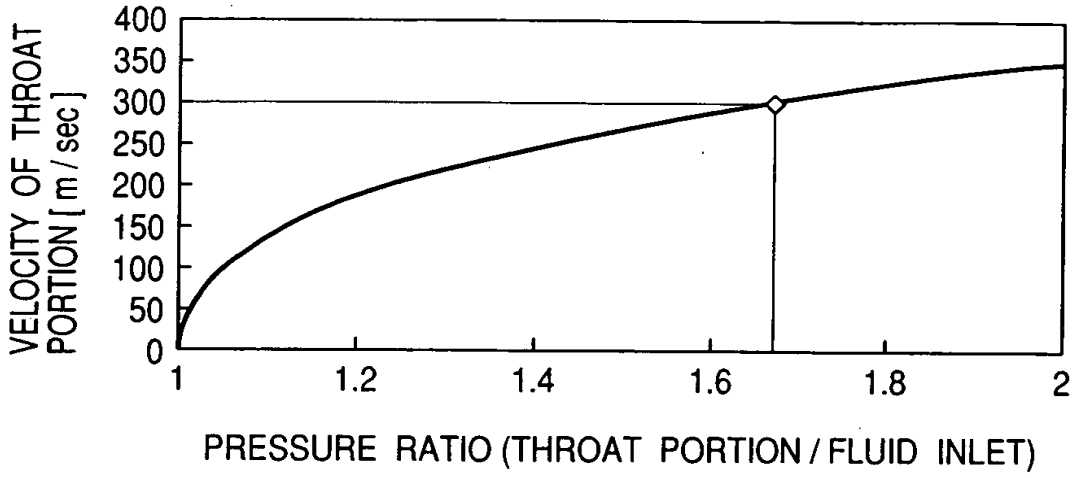
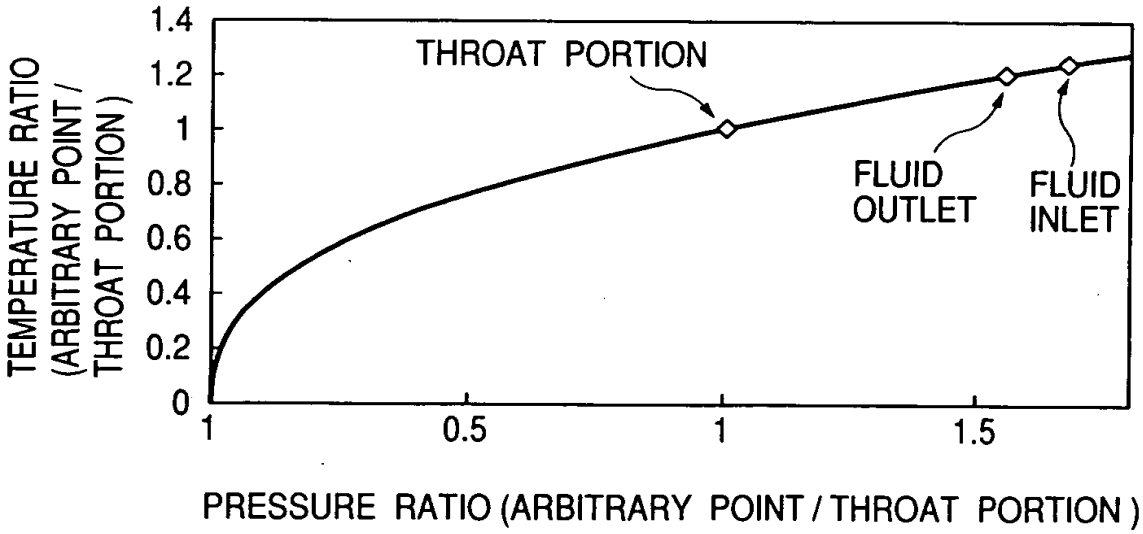


FIG. 8



GAS TEMPERATURE AT FLUID INLET : 25℃
AT THROAT PORTION : −30.3℃
AT FLUID OUTLET : 16.9℃

FIG. 9

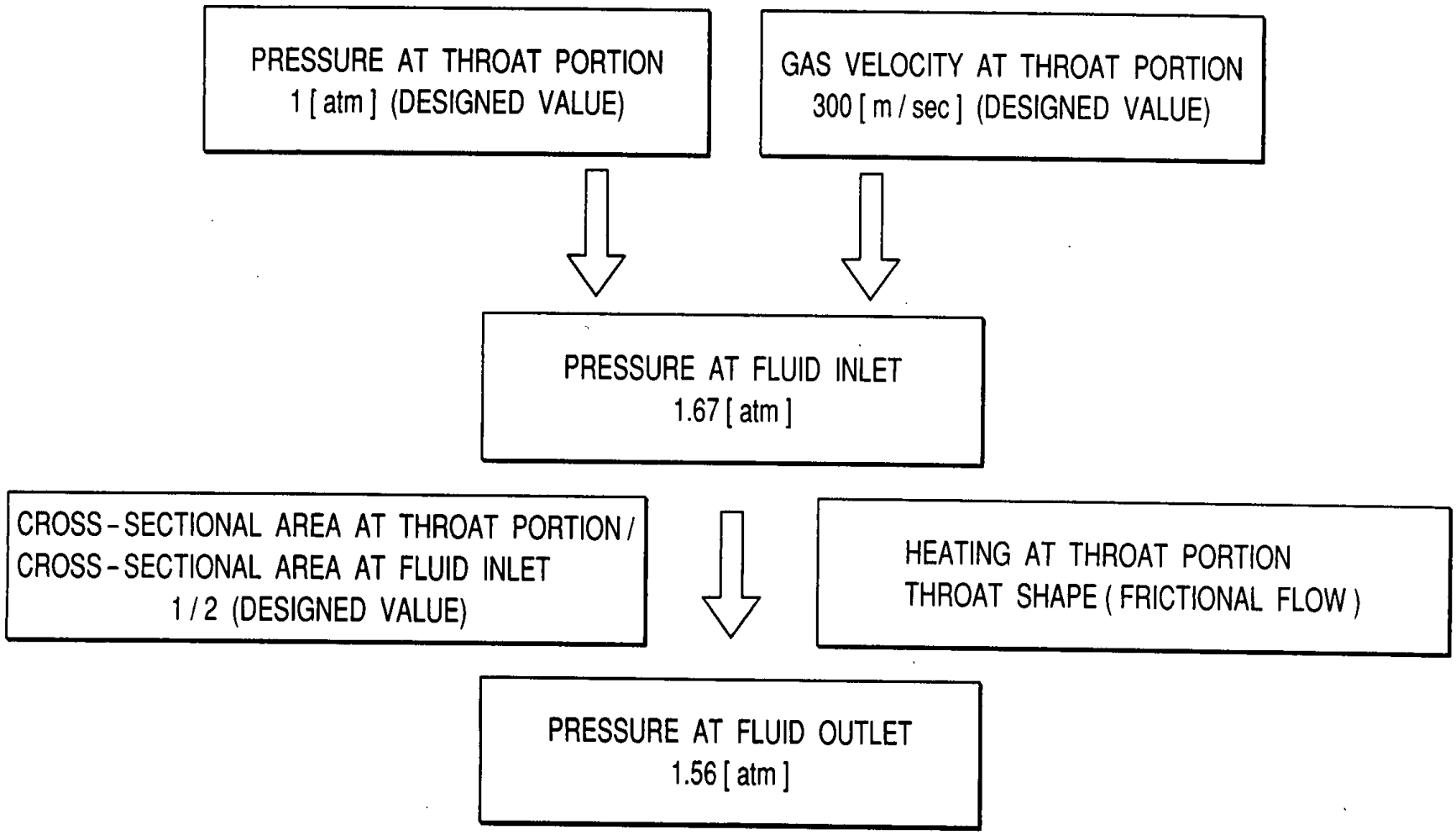

PRESSURE AT THROAT PORTION
1 [atm] (DESIGNED VALUE)
GAS VELOCITY AT THROAT PORTION
300 [m / sec] (DESIGNED VALUE)
PRESSURE AT FLUID INLET
1.67 [atm]
CROSS-SECTIONAL AREA AT THROAT PORTION /
CROSS-SECTIONAL AREA AT FLUID INLET
1 / 2 (DESIGNED VALUE)
HEATING AT THROAT PORTION
THROAT SHAPE (FRICTIONAL FLOW)
PRESSURE AT FLUID OUTLET
1.56 [atm]

FIG. 10A

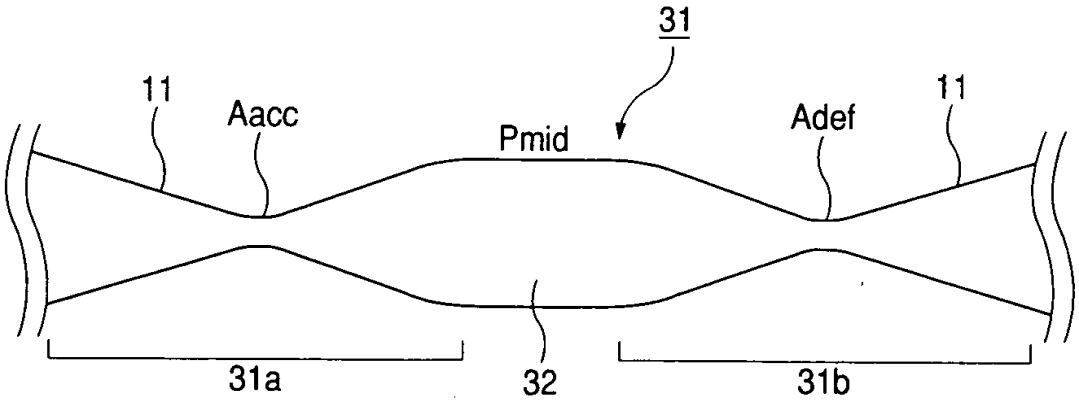


FIG. 10B

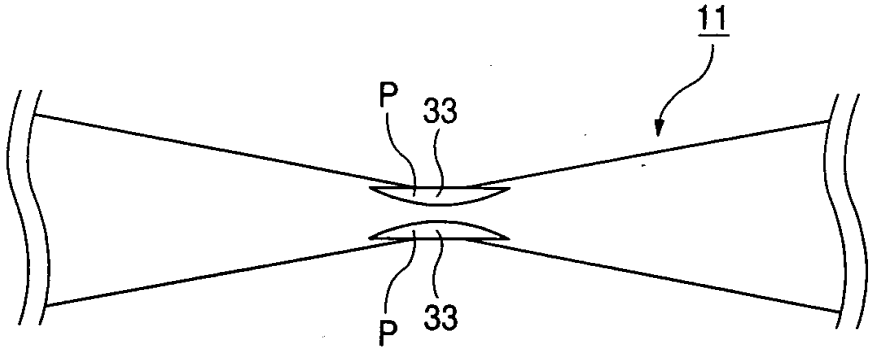


FIG. 11

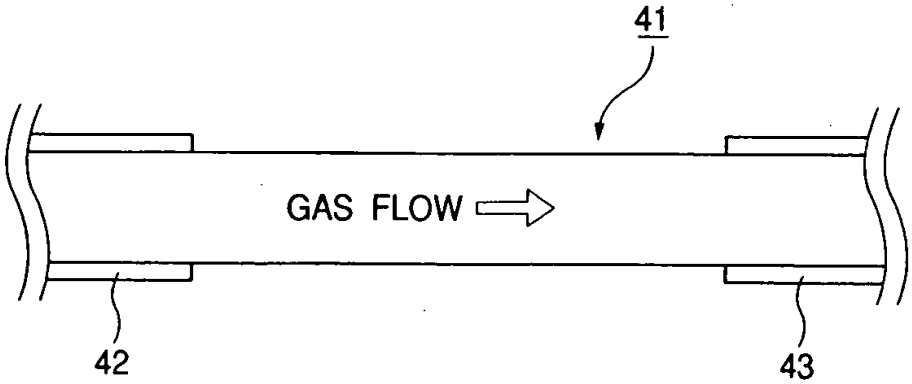


FIG. 12

	A		B	
HEAT TRANSFER	HEATING		COOLING	
	CASE OF SUBSONIC SPEED	CASE OF SUPERSONIC SPEED	CASE OF SUBSONIC SPEED	CASE OF SUPERSONIC SPEED
GAS VELOCITY	INCREASE	DECREASE	DECREASE	INCREASE
MACH NUMBER	INCREASE	DECREASE	DECREASE	INCREASE
PRESSURE	DECREASE	INCREASE	INCREASE	DECREASE
DENSITY	DECREASE	INCREASE	INCREASE	DECREASE
TEMPERATURE	$M < \gamma^{-1/2}$ INCREASE $\gamma^{-1/2} < M$ DECREASE	INCREASE	$M < \gamma^{-1/2}$ DECREASE $\gamma^{-1/2} < M$ INCREASE	DECREASE
TOTAL PRESSURE	DECREASE	DECREASE	INCREASE	INCREASE
TOTAL TEMPERATURE	INCREASE	INCREASE	DECREASE	DECREASE

$\gamma^{-1/2}$ 0.775 : MONOATOMIC MOLECULE
0.845 : DIATOMIC MOLECULE

FIG. 13

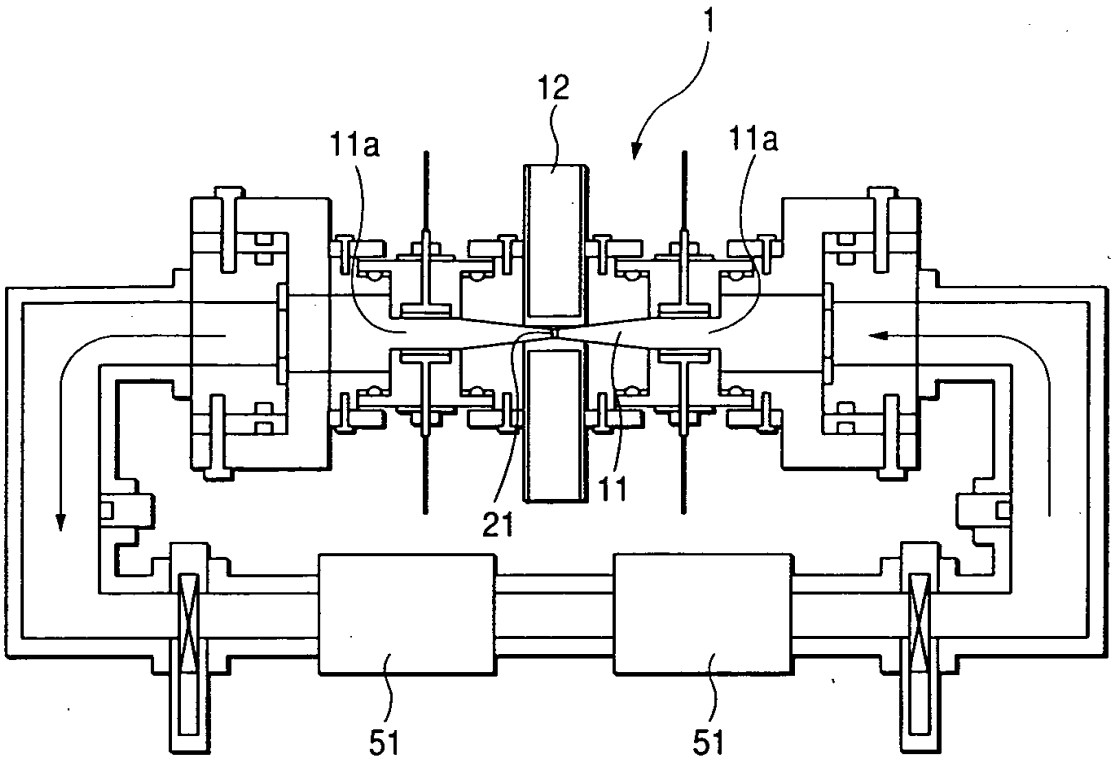


FIG. 14

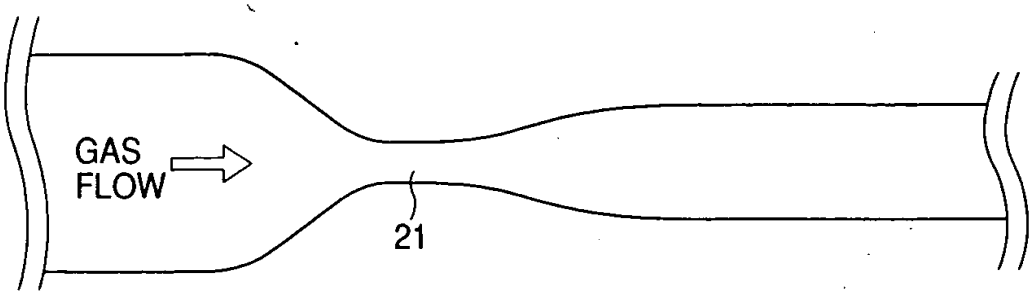


FIG. 15

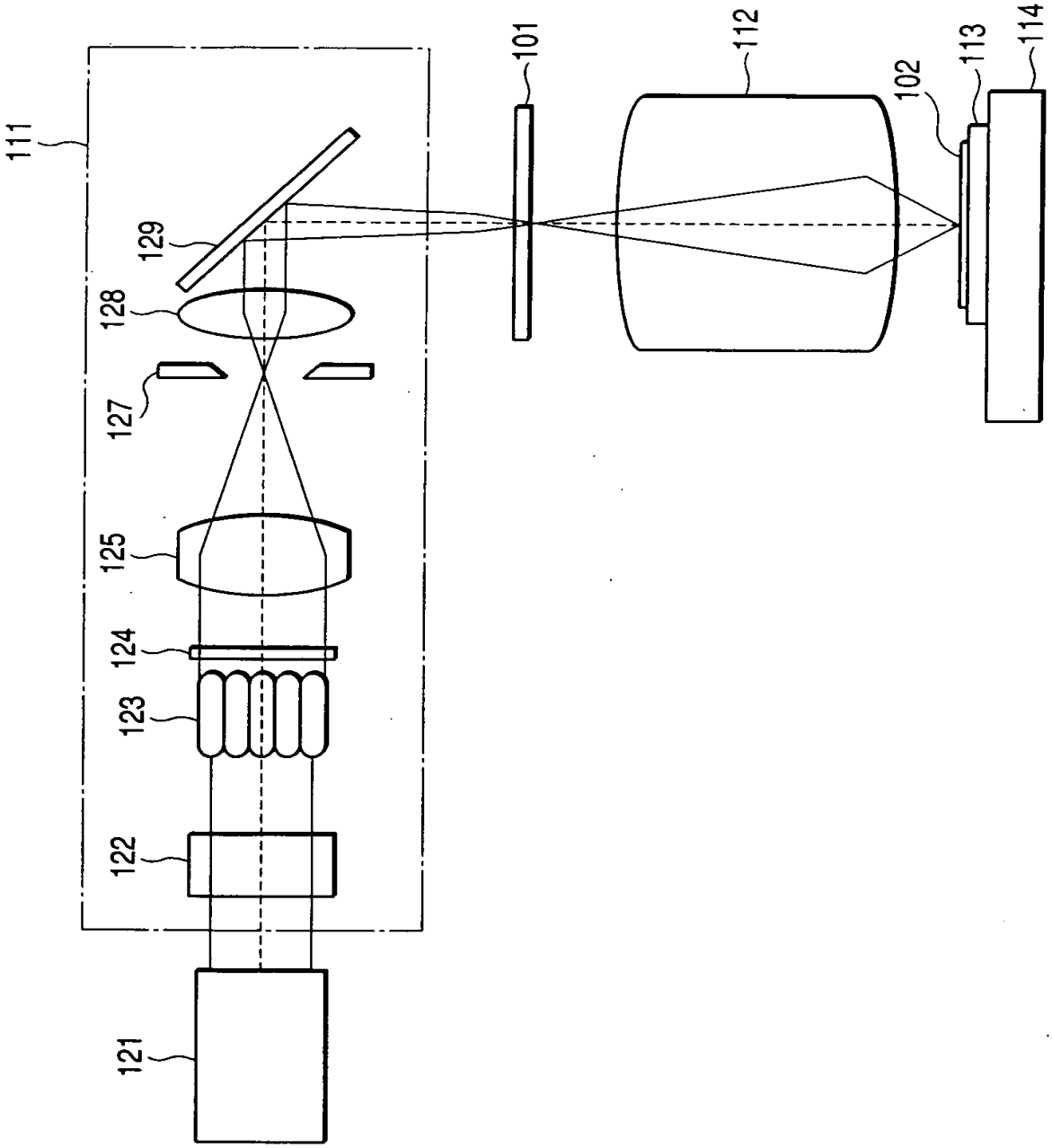


FIG. 16

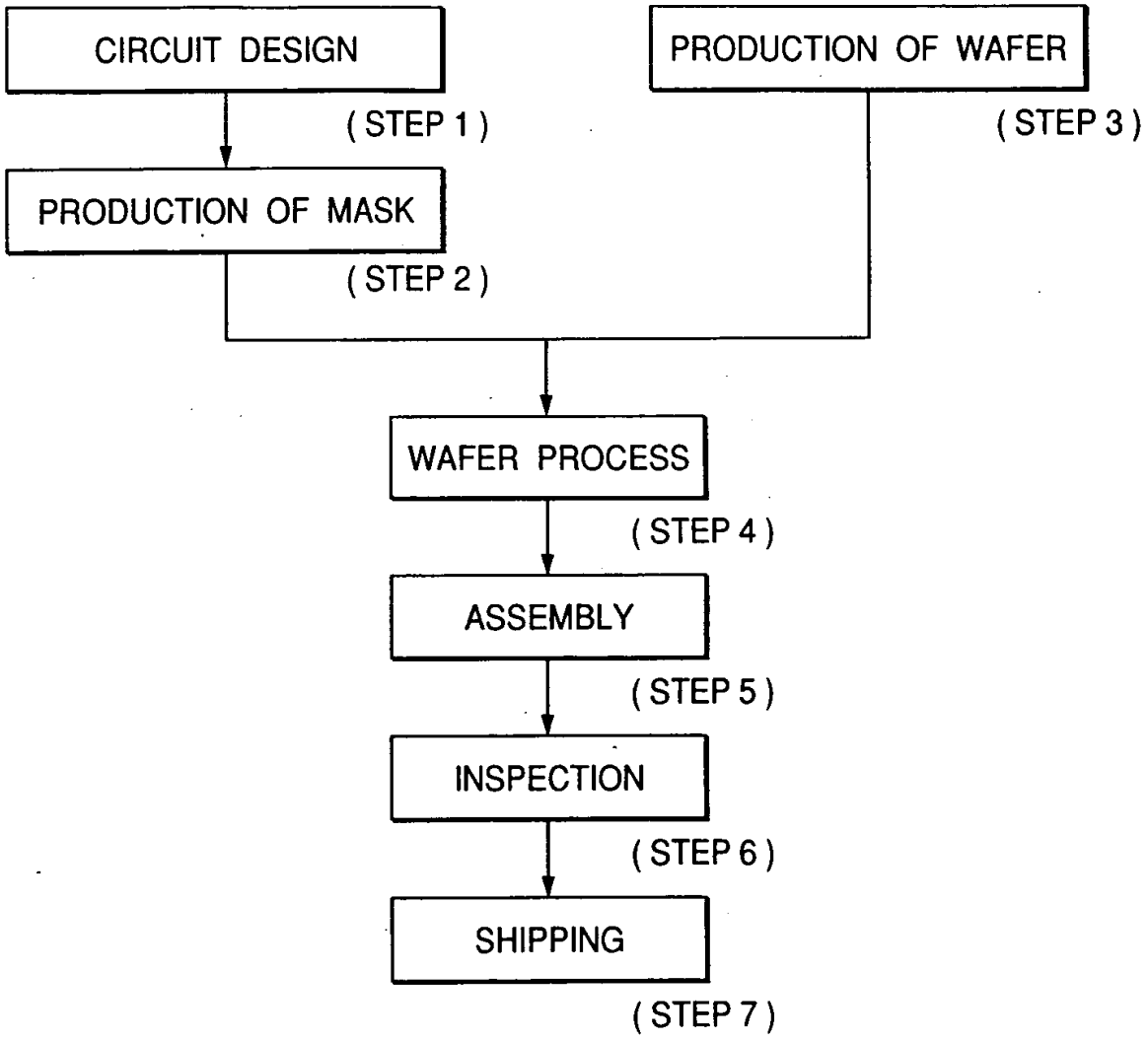
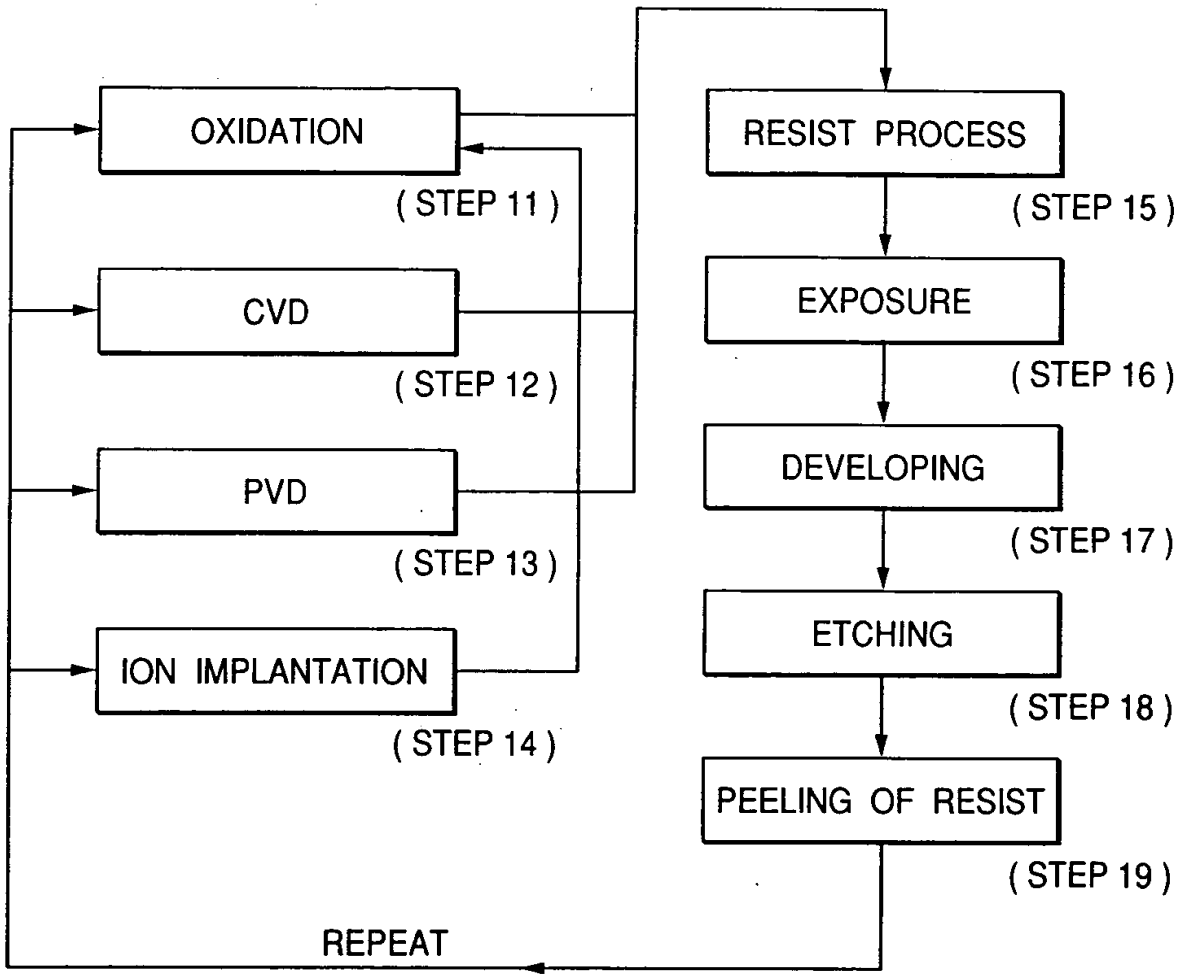

CIRCUIT DESIGN
(STEP 1)
PRODUCTION OF MASK
(STEP 2)
PRODUCTION OF WAFER
(STEP 3)
WAFER PROCESS
(STEP 4)
ASSEMBLY
(STEP 5)
INSPECTION
(STEP 6)
SHIPPING
(STEP 7)

FIG. 17


OXIDATION
(STEP 11)
CVD
(STEP 12)
PVD
(STEP 13)
ION IMPLANTATION
(STEP 14)
RESIST PROCESS
(STEP 15)
EXPOSURE
(STEP 16)
DEVELOPING
(STEP 17)
ETCHING
(STEP 18)
PEELING OF RESIST
(STEP 19)
REPEAT